

The opinion in support of the decision being entered today was not written  
for publication and is not binding precedent of the Board.

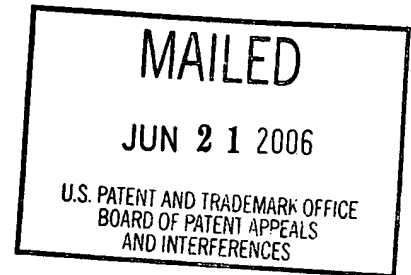
**UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Ex parte HANS-PETER BURVENICH, GERHARD DACHTLER  
and RUDIGER WELLER

Appeal No. 2006-0860  
Application No. 09/743,634

ON BRIEF



Before HAIRSTON, RUGGIERO, and BARRY, Administrative Patent Judges.  
RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of  
claims 1, 2, 4-6, 8, 10, 11, 13, 15, 16, 18-23, and 26, which are  
all of the claims pending in this application.

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The claimed invention relates to a method of operating a continuous casting and rolling plant in which a plurality of slabs belonging to different production orders are produced within sequences in the plant. The order of the slabs belonging to the production orders within the sequence is determined with a computing unit in accordance with a genetic algorithm.

Claim 1 is illustrative of the invention and reads as follows:

1. A method of operating a continuous casting and rolling plant with a computing unit, including a plurality of slabs belonging to different production orders within sequences on the continuous casting and rolling plant, comprising:

determining a solution indicating the order of the slabs belonging to the production orders within the sequences with the computing unit by a genetic algorithm;

evaluating the solution by an event-oriented evaluation, wherein the event-oriented evaluation is carried out by simulating the operation of the continuous casting and rolling plant; and

controlling the continuous casting and rolling plant by the computing unit in accordance with the solution.

The Examiner relies on the following prior art:

Shaefer	5,222,192	Jun. 22, 1993
Georgiades et al. (Georgiades)	5,404,516	Apr. 04, 1995
Lee et al. (Lee)	5,808,891	Sep. 15, 1998
		(filed Jul. 30, 1996)

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Claims 1, 2, 4-6, 8, 10, 11, 13, 15, 16, 18-23, and 26, all of the appealed claims, stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Lee in view of Shaefer and Georgiades.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Briefs<sup>1</sup> and Answer for their respective details.

#### OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the Examiner and the evidence of obviousness relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the

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<sup>1</sup> The Appeal Brief was filed August 9, 2004. In response to the Examiner's Answer mailed September 3, 2004, a Reply Brief was filed November 3, 2004 which was acknowledged and entered by the Examiner as indicated in the communication mailed November 24, 2004.

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As a general proposition in an appeal involving a rejection under 35 U.S.C. § 103, an Examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

With respect to independent claims 1 and 20, Appellants' arguments in response to the Examiner's 35 U.S.C. § 103(a) rejection assert a failure to establish a prima facie case of obviousness since proper motivation for the Examiner's proposed combination of Lee, Shaefer, and Georgiades has not been established. According to Appellants (Brief, pages 5-7; Reply Brief, pages 2 and 3), the Examiner's asserted motivation rationale, i.e., the use of genetic algorithm would have enabled the solution to a resource allocation problem to be arrived at quickly, is faulty since Lee's disclosure provides no indication

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quickly, is faulty since Lee's disclosure provides no indication that the time or speed to arrive at a scheduling solution is of any consideration.

After careful review of the disclosures of Lee, Shaefer, and Georgiades in light of the arguments of record, however, we are in general agreement with the Examiner's position as stated in the Answer. Appellants' arguments to the contrary notwithstanding, it is our view that ample motivation exists within the applied prior art references themselves for the Examiner's proposed combination.

Initially, we would point out that both Shaefer (column 29, lines 19-23) and Georgiades (column 1, lines 22-25), while not directed to rolling mill scheduling, suggest application of their disclosed genetic algorithm resource scheduling techniques to industrial control systems. Further, we find in Shaefer (column 3, lines 44-45) a disclosure of the use of genetic algorithms to improve upon previous optimization methods by permitting the "quick discovery of early approximate solutions...." We also find to be particularly noteworthy the fact that one of the optimization methods disclosed in Shaefer as being improved upon is the Monte Carlo technique which is used in the rolling mill resource scheduling system of Lee (column 6, lines 40-45).

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We agree with Appellants that Lee does not explicitly mention the need for quick scheduling solutions in the disclosed rolling mill system. With the above discussion in mind, however, it is our view that the ordinarily skilled artisan would have recognized and appreciated that the genetic algorithm resource allocation techniques disclosed by Shaefer and Georgiades, permitting the early refinement of approximate solutions to a scheduling problem, would serve as an obvious enhancement to the rolling mill schedule system of Lee.

We also find to be unpersuasive Appellants' argument (Brief, pages 7 and 8); (Reply Brief, pages 3-6) that the applied prior art does not disclose the claimed evaluation and simulation features. Although perhaps not fully appreciated by the Examiner, our review of the disclosure of Lee reveals support for the conclusion that the calculated rolling mill schedules are evaluated through computer simulation as described in the reference to Figure 6 at column 6, lines 53-60 of Lee. As described, the central processing

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unit 38 executes a software program in the form of a "synchronized steel rolling engine" stored in hard disk memory and displays the calculated multiple schedules on a display 40.<sup>2</sup> In our opinion, the rolling schedule system disclosed by Lee, when obviously combined with the genetic algorithm techniques suggested by Shaefer and Georgiades, would satisfy all of the requirements of independent claims 1 and 20.

For the above reasons, since it is our opinion that the Examiner's prima facie case of obviousness has not been overcome by any convincing arguments from Appellants, the Examiner's 35 U.S.C. § 103(a) rejection of independent claims 1 and 20, as well as dependent claims 2, 4-6, 8, 10, 11, 13, 15, 16, 18, 19, 21-23, and 26 not separately argued by Appellants, is sustained.

In summary, we have sustained the Examiner's 35 U.S.C. § 103(a) rejection of all of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 1, 2, 4-6, 8, 10, 11, 13, 15, 16, 18-23, and 26 is affirmed.

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<sup>2</sup>We make reference to Computer Desktop Encyclopedia, Ninth Edition, by Alan Freedman, Osborne/McGraw-Hill, which defines "engine" as "(2) [s]oftware that performs a primary and highly repetitive function such as a database engine, graphics engine or dictionary engine." (Copy enclosed).

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective September 13, 2004).

AFFIRMED

  
KENNETH W. HAIRSTON  
Administrative Patent Judge

*Joseph F. Ruggiero*  
JOSEPH F. RUGGIERO  
Administrative Patent Judge

BOARD OF PATENT  
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LANCE LEONARD BARRY  
Administrative Patent Judge

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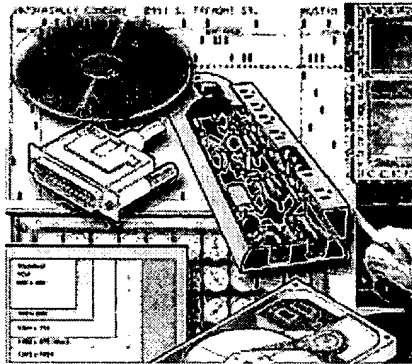
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**engine**

(1) A specialized processor, such as a graphics processor. Like any engine, the faster it runs, the quicker the job gets done. See *graphics engine* and *printer engine*.

(2) Software that performs a primary and highly repetitive function such as a database engine, graphics engine or dictionary engine.